REMARKS

The Applicants have received and reviewed the final Office Action mailed January 24, 2007. The Applicants originally submitted claims 1-21 in this application. By a previous Response filed December 14, 2006, the Applicants amended claims 4, 5, 10-12, 14, 19 and 20, and canceled claim 6. By the present Response and Amendment, the Applicants have amended claims 1, 3, 11 and 13, but have not canceled any claims. Thus, claims 1-5 and 7-21 remain pending in this application. The Applicants submit that proper support exists in the specification for the claim amendments and that no new matter has been added.

The Applicants respectfully submit that entry of the amendments is proper. The amendments raise no new issues requiring further search or consideration. Also, the Applicants respectfully submit that the amendments put the claims in condition for allowance. Accordingly, the Applicants respectfully request entry of the amendments.

Drawings Objection

The drawings are objected to because the drawings do not correctly illustrate the signal flow. For example, element 64 is a reflector that is a passive element, but the drawing shows that there are signals originated from the passive element 64. In response to the drawing objection, the Applicants have amended FIG. 2 to correctly show that no signals originate from the passive element 64. The Applicants have submitted the corrected drawings herewith. In view of the corrected FIG. 2, the Applicants respectfully submit that the drawings are not objectionable. Accordingly, the Applicants respectfully request that the Examiner withdraw the objection to the drawings.

Specification

The Examiner states that the specification is replete with terms that are not clear, concise and exact, and that the specification should be revised to fully comply with the written description requirement of 35 U.S.C. §112, first paragraph. More specifically,

the Examiner indicates that the terms "absolute frequency" and "non-absolute frequency" are considered to be unclear. The Applicants respectfully maintain that the terms at issue are sufficiently clear for purposes of complying with the written description requirement.

In the Applicants' specification, the terms "absolute frequency" and "non-absolute frequency" have been defined with sufficient clarity to be understood at least by persons skilled in the art. For example, in paragraph [0002], the Applicants describe "absolute frequency" as one frequency of the set of frequencies defined by a standards body, such as the International Telecommunications Union (ITU). As recited in the Applicants' specification, absolute frequencies are absolute in that they are defined in absolute terms by the standard, and remain fixed unless the standard is changed.

The Applicants' invention includes methods and devices that enable signals to be transmitted and received at frequencies that are not absolutely-defined frequencies, but are instead non-absolute frequencies. That is, such methods and devices allow optical information signals to be transmitted and received at optical frequencies that are not absolutely defined and that can change over time, e.g., due to the affects that temperature and aging can have on equipment. Therefore, it is also clear that a non-absolute frequency in accordance with the invention is a frequency that is other than an absolutely-defined frequency. Also, it is clear from the Applicants' specification that a non-absolute frequency reference is a frequency that is selected to be used as a reference with respect to all other non-absolute frequencies that will be used to transmit and receive signals over the network. See the Applicants' specification, e.g., at paragraphs [0025] and [0026].

The Applicants simply do not understand how the terms "absolute frequency" and "non-absolute frequency" are viewed by the Examiner as not complying with the written description requirement. As stated in the previous response, the terms at issue are clear, clearly defined, and used consistently throughout the Applicants' specification, drawings and claims in such a manner that is easily understood by one skilled in the art. Therefore, the Applicants respectfully submit that the terms at issue are defined in the Applicants' specification sufficiently to meet the clear and concise requirements of 35

U.S.C. §112, first paragraph. Accordingly, the Applicants respectfully request that the Examiner withdraw the requirement that the Applicant's specification be revised.

Claim Rejection Under 35 U.S.C. §112, First Paragraph

The Examiner has rejected claims 1-5, 8 and 11-17 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Specifically, the Examiner contends that claims 1, 11 and 13 recite "'... having channels with mutually-identical frequency differences'. However, for any non-zero frequency differences, it is impossible to [sic] for channels to have 'mutually-identical frequency differences.' It is simply against the law of nature".

In response to the rejection, the Applicants have amended claims 1, 11 and 13 to clarify that the frequency difference between the center frequencies of adjacent channels of the tunable multi-channel devices remain substantially constant. Support for the claim amendments is found in the Applicants' specification, e.g., at paragraph [0039]. In view of these claim amendments, the Applicants respectfully submit that claims 1, 11 and 13, and consequently all claims depending directly or indirectly therefrom, comply with the enablement requirement set forth in 35 U.S.C. §112, first paragraph. Accordingly, the Applicants respectfully request that the Examiner withdraw the rejection.

Claim Rejection Under 35 U.S.C. §112, Second Paragraph

The Examiner has rejected claim 3 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicants regard as the invention. More specifically, the Examiner states that it is not clear what the cited limitation in claim 3 means and that there is no antecedent basis for the limitation of "the tuning" in claim 3.

In response to the rejection, the Applicants have amended claim 3 to clarify that, prior to frequency aligning the center frequency of one of the channels of the multi-channel device with the non-absolute frequency reference, the center frequency of at least one of the channels of the multi-channel device provided to a node differs from the center frequency of a corresponding channel of another multi-channel device provided

to another node. Support for the claim amendments is found in the Applicants' specification, e.g., at paragraphs [0005], [0025] and [0026]. Also, the Applicants have removed the term "the tuning" from claim 3. In view of these claim amendments, the Applicants respectfully submit that claim 3 is sufficiently clear for purposes of meeting the requirements set forth in 35 U.S.C. §112, second paragraph. Accordingly, the Applicants respectfully request that the Examiner withdraw the rejection.

Claim Rejection Under 35 U.S.C. §103

Claims 1-5 and 7-21 are rejected by the Examiner under 35 U.S.C. §103(a) as being unpatentable over Iida et al., U.S. Published Patent Application No. US 2002/0075539 (the '539 reference) in view of Vujkovic-Cvijin et al., U.S. Published Patent Application No. US 2003/0039015 (the '015 reference). The Applicants respectfully traverse the rejection.

The Examiner indicates that the '539 reference does not disclose a tunable multi-channel device generating channels with fixed channel spacing and a frequency alignment control circuit. However, as discussed in the remarks of the previous Response and Amendment, the '539 reference also does not disclose other claimed features of the invention, such as distributing or providing a non-absolute frequency reference to different nodes of the network for the purpose of frequency aligning one of the channels of a tunable multi-channel device at various nodes with the non-absolute frequency reference. Therefore, the combination of the '539 reference with any reference that discloses a tunable multi-channel device generating channels with fixed channel spacing and a frequency alignment control circuit still does not suggest the Applicants' claimed invention. Moreover, as will be discussed in greater detail hereinbelow, the '015 reference, which is directed to using absolute frequencies for each channel and tuning tunable lasers to absolute frequencies, actually teaches away from the Applicants' claimed use of tuning to a non-absolute frequency reference. Therefore, clearly, the combination of the '539 reference and the '015 reference does not suggest the Applicants' claimed invention.

As discussed in the remarks of the previous Response and Amendment, the '539 reference is directed to wavelength division multiplexing (WDM) and demultiplexing, and

recites devices, systems and methods that perform multiplexing and demultiplexing functions in a way that purportedly allows the number of channels to be increased without increasing intermodulation distortion that typically results when a relatively large number of subcarriers are used to transmit and receive information. Although the '539 reference has been cited as disclosing "distributing a non-absolute frequency reference to nodes of the network", the reference signal in the '539 reference actually is multiplexed and demultiplexed along with all of the other signals, and is used to determine by how much the other electrical signals once converted from optical on the receiver side need to be shifted in frequency to be accurately reconstructed. Moreover, nothing in the '539 reference discloses or suggests distributing non-absolute references identical in frequency to nodes of a network and, at each of the nodes, frequency aligning one of the channels of a tunable multi-channel device with the non-absolute frequency reference, as recited in the Applicants' claimed invention, e.g., in the Applicants' independent claim 1. The reference signal in the '539 reference is simply transmitted over a channel; it is never used to frequency align a channel. For at least these reasons, the '539 reference, even if combined with a reference that discloses a tunable multi-channel device generating channels with fixed channel spacing and a frequency alignment control circuit, still would not disclose or suggest the Applicants' claimed invention.

Also, as discussed in the remarks of the previous Response and Amendment, the '015 reference is directed to tuning multiple lasers of a dense WDM (DWDM) system to an absolute frequency, and directing the light from the lasers into an etalon, which is then used to tune each of the lasers to a different etalon frequency fringe (resonant peak), which becomes the channel for that laser. However, as noted above, the '015 reference clearly is directed to using absolute frequencies and does not suggest using non-absolute frequencies, which is completely opposite from the Applicants' claimed invention. See, e.g., the '015 reference at paragraph [0029], in which it is discussed that each laser is tuned to a set of equally spaced wavelengths according to the ITU frequency grid. As discussed in the Applicants' specification, e.g., in paragraph [0002], the set of wavelengths according to the ITU frequency grid defines absolute frequencies. As discussed hereinabove, the Applicants' claimed invention

involves using a non-absolute frequency reference and frequency aligning to the non-absolute frequency reference. Thus, the tuning in the '015 reference is the completely opposite from that of the Applicants' claimed invention. Accordingly, the combination of the '015 reference with the '539 reference does not disclose or suggests the Applicants' claimed invention.

In view of the foregoing remarks, the Applicants' respectfully submit that the combination of the '539 reference and the '015 reference, even if properly combinable, does not disclose or suggest the Applicants' claimed invention. Accordingly, the Applicants respectfully request that the Examiner withdraw the rejection under 35 U.S.C. §103(a) over Iida et al. (the '539 reference) in view of Vujkovic-Cvijin et al. (the '015 reference).

CONCLUSION

In view of the foregoing, the Applicants believe the remaining rejections have been overcome and/or traversed and that the application is now in condition for allowance. Should there be any further questions or concerns, the Examiner is urged to telephone the undersigned.

Respectfully submitted,
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